

COLORADO RIVER RECOVERY PROGRAM  
FY-2001-2002 PROPOSED SCOPE OF WORK

Project No.: Bottle Hollow

Lead Agency: U.S. Fish and Wildlife Service

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Category:

Expected Funding Source:

|   |   |
|---|---|
| <input type="checkbox"/> Ongoing project                  | <input type="checkbox"/> Annual funds             |
| <input type="checkbox"/> Ongoing-revised project          | <input checked="" type="checkbox"/> Capital funds |
| <input checked="" type="checkbox"/> Requested new project | <input type="checkbox"/> Other (explain)          |
| <input type="checkbox"/> Unsolicited proposal             |   |

I. Title of Proposal: Bottle Hollow Reservoir Nonnative Fish Control Structure

II. Relationship to RIPRAP:

GREEN RIVER ACTION PLAN: Duchesne River  
ACTIVITY III.A.3.a.1. If feasible and necessary, screen Bottle Hollow.

III. Study Background/Rationale and Hypotheses:

The Ute Indian Tribe (Tribe) wants to provide a small, 1 acre fishing pond for Tribal members living in the Tribal Elder Center in Fort Duchesne, Utah. The pond will be located 1 mile downstream from the outlet of Bottle Hollow Reservoir on the Uintah and Ouray Indian Reservation just west of Fort Duchesne. An in-channel pond impoundment is proposed rather than an off-channel pond because it would be the most cost effective, involve less construction and habitat disturbance, and require only one screening structure. The Tribe also proposes to build a walking path leading from the Elder Center down to the pond and provide a picnic area at the pond including shaded benches. A small sprinkling system will be installed to grow grass in the picnic area.

The construction of the pond would destroy some stream wetland habitat (less than 1/10 of an acre), but this loss would be insignificant because the habitat is artificial and dependent upon the ephemeral flow of water out of Bottle Hollow Reservoir. Any loss of wetland habitat would be replaced by wetland habitat created from the pond.

The pond will be fitted with a fish screen on the outlet channel to prevent the escapement of nonnative fish from Bottle Hollow Reservoir upstream and the pond from migrating downstream into the Uinta and Duchesne rivers. With the screen in place, the Tribe plans to stock the reservoir with a sportfish species, like smallmouth bass (*Micropterus dolomieu*), to control nonnative fishes and help improve the existing rainbow

(*Oncorhynchus mykiss*) and brown (*Salmo trutta*) trout fisheries. The tribe also wishes to stock the pond with smallmouth bass and channel catfish (*Ictalurus punctatus*). The Tribe could also translocate smallmouth, channel catfish and Northern pike (*Esox lucius*), captured during annual research studies in the Green River system, to Elders Pond. Currently, there are no outdoor recreational sites easily accessible to tribal elders living in the Tribal Elder Center.

The project will provide recreational opportunities for Tribal elders living in the Tribal Elder Center, eliminate fish escapement from Bottle Hollow Reservoir into the Uinta and Duchesne rivers, and improve fishing in Bottle Hollow Reservoir.

Bottle Hollow Reservoir was built by the U.S. Bureau of Reclamation in 1970 as partial mitigation for Flaming Gorge Reservoir water under the Central Utah Project. Its primary purpose is to provide recreation and tourism for the Ute Indian Tribe (not irrigation or flood control). The reservoir is the largest on the reservation covering 420 surface acres, has a water capacity of 11,100 acre feet, with an average depth of 26.4 ft and a maximum depth of 52 ft near the outlet structure on the east side, and it is 1.3 mi long and 0.6 mi wide. It is located 7.5 mi east of Roosevelt and 1 mi west of Fort Duchesne Utah. The Reservoir is filled with water diverted from the Uintah River via the Bench Canal. The reservoir drains east down the outlet into the Uinta River.

The reservoir is classified as a high desert (elevation 5200 ft) oligotrophic (deep, cold, low in nutrients) reservoir. It generally stratifies in early July at around 20-25 ft below the surface. The thermocline, the stratification zone between the epilimnion and hypolimnion, is approximately 10 ft in depth. During this time the hypolimnion becomes anoxic and the epilimnion warm enough to stress salmonids until late September or early October when the lake becomes homothermous (mixed). Dissolved oxygen readings average 8.0 ppm at the surface, 6.0 ppm below the thermocline, and 0.0 ppm below at about 35 ft. Oxygen levels usually remain high during the ice covered period from late December to mid April. Water temperatures range from 68-72°F at the surface during the summer months and are 64-68°F just above the thermocline and average about 57°F degrees on the bottom. Total alkalinity averages 118 ppm, pH 8.2 at the surface and 7.2 on the bottom, and a conductivity of 271 µmhos.

Although the reservoir is managed as a cold water sport fishery, it borders on actually being a cool water system (average summer time temperature of 70°F. In the past the reservoir has been stocked with Colorado River cutthroat trout (*Oncorhynchus clarki pleuriticus*), Rainbow trout (*Oncorhynchus mykiss*), brook trout (*Salvelinus fontinalis*) and Brown trout (*Salmo trutta*) from Jones Hole National Fish Hatchery. Colorado River cutthroat trout have not been stocked into the reservoir because disease certification problems. Currently, only Rainbow and Brown trout have been stocked into the reservoir. Approximately 10,000 Rainbow and Brown trout are stocked into Bottle Hollow annually. Other fish found in Bottle Hollow include Common carp (*Cyprinus carpio*), Fathead minnow (*Pimephales promelas*), Black bullhead (*Ictalurus melas*). There have been some recent unconfirmed reports of Smallmouth bass (*Micropterus dolomieu*) being caught in the reservoir. In addition crayfish (*Orcanectes causyiei*) are also found in the reservoir. These other species often compete with the salmonids stocked into the reservoir for food. Recently, the increase in Black bullhead and crayfish populations within the reservoir has coincided with an observed decrease in the condition (mean K-factor = 0.79, poor) of rainbow trout residing in the reservoir. The Tribe would like to stock Smallmouth bass into the reservoir as a management tool to improve the rainbow

and brown trout fishery. The Utah Division of Wildlife Resources (Division) has experienced great success in improving the forage conditions for rainbow trout in heavily crayfish infested reservoirs by stocking smallmouth bass (L.N. Berg and D. K. Hepworth, 1992, Chad Crosby, personal communication, Utah Division of Wildlife Resources) which feed heavily on crayfish and nonnative carp, Green sunfish, and Black bullheads.

The proposed Elders Pond and fish screen structure would keep the Smallmouth bass, Channel catfish and other nonnative fish from moving down river. In addition, all nonnative sportfish captured during Program sampling trips in the Green, White, and Duchesne rivers could be transported and released into the reservoir. The benefits of this would be twofold as it would enhance the trout sport fishery in the reservoir and remove these nonnative predators from the system. The Recovery Implementation Program for the Endangered Fishes in the Upper Colorado River Basin believes this project will keep nonnative fish from exiting the reservoir and entering the Uintah and Duchesne rivers where they may potentially impact the endangered Colorado pikeminnow (*Ptychocheilus lucius*), Razorback sucker (*Xyrauchen texanus*), Humpback chub (*Gila cypha*) and Bonytail chub (*Gila elegans*) in the Green River.

The site for the proposed pond is not within the 100-year floodplain (Personal Communication, Shane Marshall, Environmental Engineer, Utah Department of Transportation). This is confirmed by an Environmental Assessment which was done in 1997 near the proposed pond site for the Ute Plaza Supermarket/Shopping Center. A draft Environmental Assessment was prepared in May 2001 for this project by the Roosevelt Fish and Wildlife Management Assistance Office and has been reviewed by the Salt Lake City Ecological Service Office.

IV. Study Goals, Objectives, End Product:

Design and install screening device to reduce nonnative fish migration downstream out of Bottle Hollow Reservoir and the proposed Elders Pond into the Uinta, Duchesne and Green rivers. This screening structure would be similar to the modified turbulent fountain structure built at Pariette Draw for the U.S. Bureau of Land Management in 1996.

V. Study area: Bottle Hollow Reservoir and its outlet downstream to the Uinta River, Fort Duchesne, Utah (Figure 1).

VI. Task Description and Schedule

1. Uintah Engineering conducts a survey and design of the Elder's Pond –Sept. 2000
2. U.S. Fish and Wildlife Service's Fish and Wildlife Management Assistance Office complete a Draft Environmental Assessment of Elder's Pond–May 2001
3. U.S. Fish and Wildlife Service's Fish and Wildlife Management Assistance Office complete a Scope of Work for the Recovery Implementation Program for the Endangered Fishes in the Upper Colorado River Basin–June 2001
4. Uintah Engineering and Survey designs Elders Pond - Oct 2001
5. Ute Indian Tribe obtains Stream Alteration Permit–June 2001
6. Ute Indian Tribe complete NEPA and finalize screen design–Oct 2001
7. Uintah Engineering construct Elders Pond–Nov 2001-Apr 2002
8. Uintah Engineering install screen structure–Apr. 2002

## VII. FY-2001-2002 Work

### -Deliverables/Due Dates

Concrete modified turbulent fountain fish control structure (4/2002)

### -Budget

|   |                  |                 |
|---|------------------|-----------------|
| - | Labor            | \$17,350        |
| - | Travel           | \$ 650          |
| - | <u>Equipment</u> | <u>\$20,000</u> |
| - | Total            | \$38,000        |

## IX. Budget Summary

|                |               |
|----------------|---------------|
| <u>FY-2002</u> | <u>\$38K*</u> |
| Total:         | \$38K         |

\*Note: Project will be cost-shared by Ute Indian Tribe (\$10K) and the Recovery Program (\$28K)

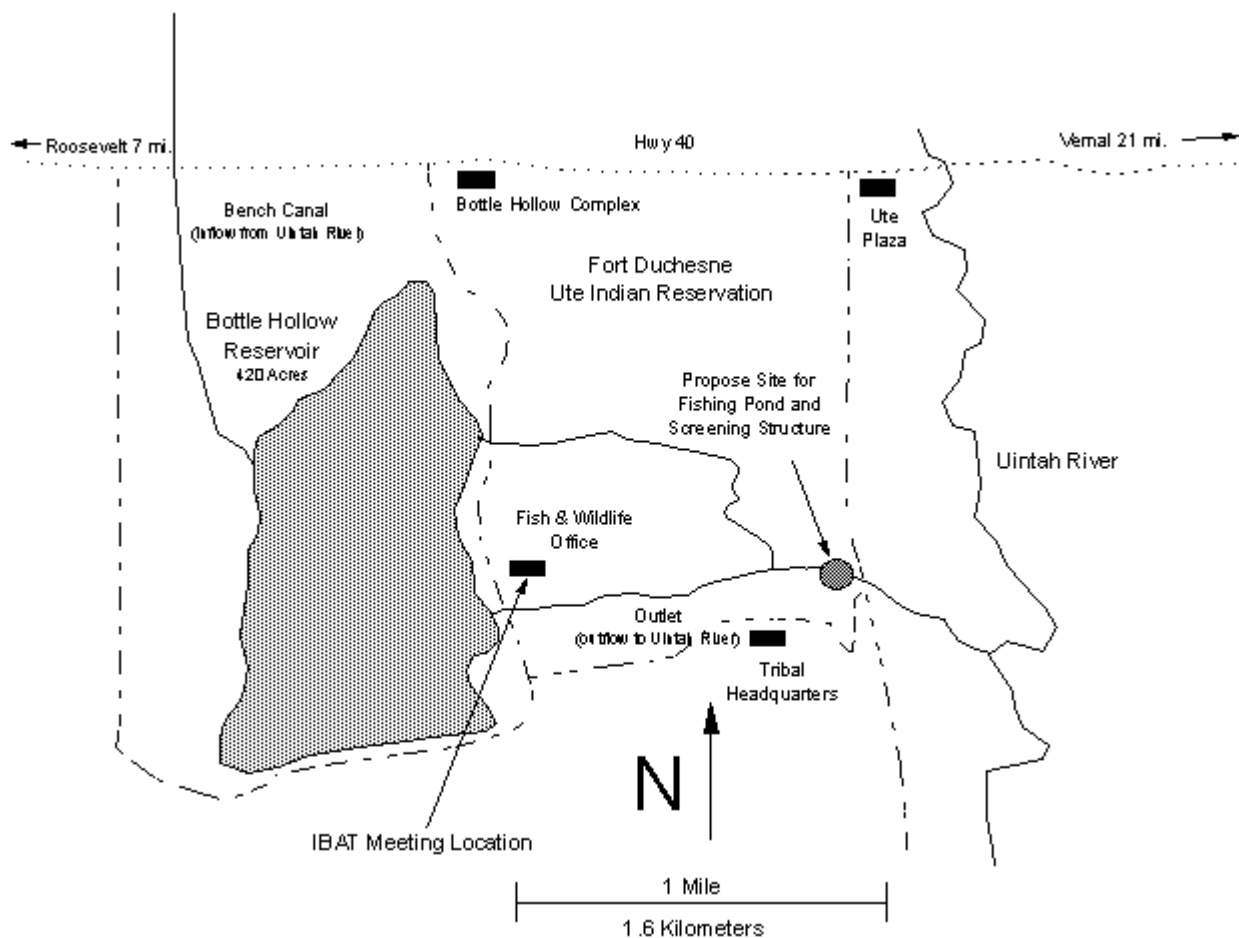


Figure 1. Location of Ute Indian Tribe's Elders Pond.